Remarks

Applicants wish to thank Examiner Yamnitzky and Supervisory Patent Examiner Dye for recently taking the time to discuss this application with Applicants' representatives. Your helpful comments are appreciated.

Claims 39, 43, 44, 47, 51, 53, 63, 66, 68, 70, 74, 92, and 93 are pending in the application. Claims 1, 5, 6, 9-24, 26-30, 32-38, 48-50, 52, 54-62, 71-73, and 89 have been canceled without prejudice. Applicants expressly reserve the right to prosecute in subsequent divisional applications or continuing applications or both claims covering the subject matter of the claims canceled. 35 U.S.C. §§ 120-121. Claims 39, 43, 47, and 51 have been amended. Support for the claim amendments can be found throughout the application, including the claims as originally filed. Importantly, no new matter has been added to the claims. For example, support for the amendment to claim 39 can be found on page 14 of the specification and in the Examples. The amendment to the claims should not be construed to be an acquiescence to any of the rejections. The amendments to the claims are being made solely to expedite the prosecution of the above-identified application. Applicants reserve the right to further prosecute the same or similar claims in subsequent patent applications claiming the benefit of priority to the instant application. 35 USC § 120. Claims 92 and 93 are new. Support for the new claims can be found throughout the application, including the claims as originally filed. Importantly, no new matter has been added.

Response to Rejections under 35 U.S.C. 112¶1

Paragraph numbers corresponding to the paragraph numbers in the Examiner's office action have been used for clarity.

5. Claims 1, 5, 6, 9-24, 26-30, 32, 33, 38, 39, 43, 44, 47-63, 66, 68, 70-74 and 89 stand rejected under 35 U.S.C. 112¶1 based on the Examiner's contention that they fail to comply with the written description requirement. In particular, the Examiner contends that the specification lacks written description for the claimed coatings, because the description of coating in the claims is not the same as the description in the specification.

This rejection, as it pertains to claims 1, 5, 6, 9-24, 26-30, 32, 33, 38, 48-50, 52, 54-62, 71-73, and 89 has been rendered moot by the cancellation of claims. As for the remaining claims 39, 43, 44, 47, 51, 53, 63, 66, 68, 70, and 74, Applicants submit that claim 39 as amended and from which all of the remaining claims depend, comprise either the exact same language found in the specification (see page 13) or are adequately supported otherwise (e.g. Example 7 is run in seawater and one of the claimed coating mediums is aqueous). Applicants submit that literal support is not required in order to provide an adequate written description. (See In re Wilder, 736 F.2d 1516, 222 USPQ 369 (Fed. Cir. 1984) "It is not necessary that the claimed subject matter be described identically, but the disclosure originally filed must convey to those skilled in the art that applicant had invented the subject matter later claimed.")

Accordingly, Applicants submit that claims 39, 43, 44, 47, 51, 53, 63, 66, 68, 70, and 74 as amended comply with the written description requirement.

6. Claims 1, 5, 6, 9-24, 26-30, 32, 33, 38, 39, 43, 44, 47-63, 66, 68, 70-74, and 89 stand rejected under 35 U.S.C. 112¶1 based on the Examiner's contention that the specification does not reasonably provide enablement for the coatings claimed by claims 1 and 39, and claims dependent thereon.

This rejection, as it pertains to claims 1, 5, 6, 9-24, 26-30, 32, 33, 38, 48-50, 52, 54-62, 71-73, and 89, has been rendered moot by the cancellation of these claims. In addition, independent claim 39 and claims 43, 44, 47, 51, 53, 63, 66, 68, 70, and 74, which depend on claim 39, are adequately enabled as required by the case law.

Note that independent claim 39 has been amended to further limit the scope of the component compounds of the presently claimed coatings. The definition of "Y" in general structure 1 has been limited to O and the substituents on "Z" have been limited to alkyl or aralkyl. Examples of such compounds can be found in the Examples in the specification and/or in the Declaration by Professor Randall Alberte submitted with the previous Response under 37 C.F.R. § 1.132.

Independent claim 39 has also been amended to be drawn to a "coating comprising an effective amount of a compound represented by general structure 1." The

term "effective amount" is defined within the specification as an amount of the disclosed antifouling compound that significantly reduces the number of organisms that attach to a defined surface (cells/mm^2) relative to the number that attach to an untreated surface. See page 14. Applicants submit that one need not disclose actual amounts to satisfy the enablement requirement. See Cross v. Iizuka, 753 F.2d 1040, 224 USPQ 739 (Fed. Cir. 1985) where the enablement requirement's how to use aspect was met even though the specification did not disclose dosage levels for the compounds because one of ordinary skill in the art could determine the dosage level without undue experimentation.

Additionally, Applicants submit that the utility/operability of the compounds described by the claims to inhibit the attachment of organisms to surfaces containing the claimed coatings is adequately supported by the specification's description of the compounds' activity/mechanism of action (See e.g. page 6, lines 9-10) and data presented for representative phenyl sulfate ester compounds and representative organisms, including various algae, bacteria and fungi (See examples 1-7) as required by the case law.

"[I]n explaining what constitutes a sufficient showing of utility in the context of the enablement requirement, this court has stated that an applicant's failure to disclose how to use an invention may support a rejection under either section 112, paragraph 1 for lack of enablement, or 'section 101 for lack of utility *when there is a complete absence of data supporting the statements which set forth the desired results of the claimed invention.'* Rasmusson v, SmithKline Beecham Corp., 413 F.3d 1318 (Fed. Cir. 2005) quoting In re Cortright, 165 F.3d 1353, 1356 (Fed. Cir. 1999), which further quoted Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 762 (Fed. Cir. 1984).

Although the instant specification provides sufficient supporting data, the utility/operability of the compounds is further substantiated by Professor Alberte's Declaration submitted in response to the previous action. In particular, this Declaration provides additional data supporting the efficacy of alkyl phenyl sulfate ester compounds (in particular the Fendoff Compounds) at inhibiting the attachment of a variety of different organisms, including various bacteria, fungi, viruses, algae, protists, etc..

Accordingly, the Applicants respectfully request the withdrawal of the rejection of the claims under 35 U.S.C. 112¶1.

Response to Rejections Under the Judicially Created Doctrine of Non-Statutory Obviousness-Type Double Patenting

Claims 39, 43, 44, 47-63, 66, 68, 70-74, and 89 stand provisionally rejected under non-statutory obviousness-type double patenting as be unpatentable over claims 34 and 37-39 of copending Application No. 09/406,184. The Applicants submit that regarding claims 48-50, 52, 54-62, 71-73, and 89, the rejection has been rendered moot by the cancellation of these claims. Regarding remaining claims 39, 43, 44, 47, 51, 53, 63, 66, 68, 70, and 74, the Applicants, solely to expedite prosecution to allowance of the pending claims, the Applicants submit herewith a Terminal Disclaimer, corresponding to copending Application No. 09/406,184 cited by the Examiner, that complies with the requirements of 37 C.F.R. § 1.321(c). The Disclaimer is accompanied by the appropriate fee, and the Applicants believe that it complies with the requirements of 37 C.F.R. § 1.321(c).

Accordingly, withdrawal of the rejections under the judicially-created doctrine of obviousness-type double patenting is respectfully requested.

Information Disclosure Statement

Submitted along with this Amendment and Response is an Information Disclosure Statement (IDS) for the Examiner's consideration. The IDS contains references cited in an Office Action in U.S. Patent Application No. 09/406,184. The Examiner in the most recent Office Action has rejected some of the pending claims under the judicially created doctrine of obviousness-type double patenting over claims in U.S. Patent Application No. 09/406,184. In accordance with the Applicants' duty of disclosure under 37 C.F.R. § 1.56, these references are being submitted herewith.

The Applicants request the Examiner consider the following when considering the references.

U.S. Patent No. 4,046,731 to Mortimer et al.

Mortimer et al. discloses a process for preparing dopes from which certain aromatic oxadizole/N-alkylhydrazide copolymers may be isolated. See column 1, lines 8-10. Methyl sulfate is used as a C_1 to C_4 alkyl salt in slurries as a methylating agent to control the proportion of methylated monomers and viscosity of the resulting copolymers. See column 3, lines 56-63.

Mortimer et al. does not anticipate or render obvious any of the present claims because "Z" in general structure 1 of claim 39 is not an alkyl group. Additionally, the compounds in the coatings of the present claims are not salts. In fact, salts do not work in the present coatings because they leech out of the coatings too quickly and are lost, allowing fouling agents to form on the supposedly protected surface.

U.S. Patent No. 4,281,110 to Blount

Blount discloses a process for the production of broken down lignin-cellulose silicate copolymers. See column 1, lines 15-22. Blount discloses using alkyl aryl sulfates as an emulsifying or dispersing agent in the reaction mixture. See column 5, lines 1-5. The emulsifying or dispersing agents are any salt-stable compounds which are highly hydrophobous in nature and have a hydrophobic group as one component and a hydrophilic group as the other component. See column 4, lines 43-47. The types of emulsifying or dispersing agents described by Blount are anionic salts, with a polar - $OS(O)_2O^- Na^+$ group at one end and an aryl group with a carbon chain at the other end. The medium in which Blount's reactions are run in is a mixture of water and organic solvent. See Examples. Emulsifying agents are needed to get these polar and non-polar solvents to mix, but they are not part of the final product, which in this case is a polymer that settles out. See column 18, Example 1, lines 39-43 ("The reaction is complete in 30 minutes to 8 hours thereby producing a light brown broken down lignin-cellulose silicate copolymer which settles out. The water, salt and unreacted components are removed [by] filtration."). An Na^+ salt was used in the example above because in all of Blount's reactions NaOH is used as a base to break down the components of the polymeric mixture. See Examples.

As discussed above, the present invention relates to a coating comprising neutral compounds, not salts. Blount does not anticipate the present claims because Blount discloses salts as emulsifying agents that are used to mix water and a non-polar solvent, and are then removed from the final product. It also would not have been obvious to one of ordinary skill in the art to use a neutral compound when an emulsifying agent is taught, because the purpose of an emulsifying agent when used with water and an organic solvent teaches away from using a neutral compound (i.e. one would want the polar anionic salt end when water is involved). Even if a neutral emulsifying agent was added it would not remain neutral under the basic reaction conditions of Blount.

U.S. Patent No. 5,066,706 to Destryker et al.

Destryker et al. discloses a process for preparing a latex based on polypyrrole, from which it is possible to obtain adherent homogenous films in a wide range of thickness and having high conductivity. See column 1, lines 9-12. The process is based on polymers of pyrrole or a pyrrole derivative in an aqueous reaction medium comprising a ferric salt, a polyvinyl alcohol or a derivative of this alcohol, and a codispersant agent. See column 1, lines 36-40. Codispersant agent is understood to mean organic compounds capable of giving rise to anions. Among theses compounds, organic compounds which react with the ferric salt present in the reaction medium, or which have already reacted with a ferric salt before introduction into the reaction medium, are preferred. See column 1, lines 44-49. One of the suggested codispersant agents is aryl sulfate. See column 1, line 50. Destryker et al., as in Blount, discloses using salt forms of aryl sulfates as codispersants to get non-polar pyrroles to mix in an aqueous medium. See column 2, lines 62-68, and continued into column 3, lines 1-3. In this case the salt is an iron salt according to the following reaction. Ferric chloride is used in this example because it is the preferred iron compound. See column 2, lines 26-27.

$$Fe(III)Cl_3 + 3\ HOS(O)_2O\text{-aryl}) \text{ ------> } Fe(III)(OS(O)_2\text{-aryl})_3 + 3\ HCl$$

This is even assuming that a neutral aryl sulfate is used. As disclosed in Dekstryker et al., the preferred codispersant is sodium dodecyl sulfate. See column 2, lines 2-3. As with all codispersant agents, once they have done their job of getting two

things of different polarity to mix, they are nothing more than an impurity to be washed out. See column 5, Examples 7 and 8, lines 1-12.

As discussed previously, the present invention relates to a coating comprising neutral compounds, not salts. Destryker et al. does not anticipate the present claims because Destryker et al. discloses salts as codispersant agents that are used to mix water and pyrroles, and are removed from the final product. It also would not have been obvious to one of ordinary skill in the art to use a neutral compound when a codispersant agent is taught, because the purpose of a codispersant agent when used with water and an organic compound teaches away from using a neutral compound (i.e. one would want the polar anionic salt end when the medium is water). Even if a neutral codispersant agent was added it would not remain neutral in the presence of the ferric salts disclosed in Destryker et al.

Fees

The Applicants believe that no additional fees are due in connection with the filing of this paper. Nevertheless, the Director is hereby authorized to charge any additional required fee to our Deposit Account, **06-1448**.

Conclusion

In view of the above amendments and remarks, the Applicants believe that the pending claims are in condition for allowance. If a telephone conversation with Applicant's Agent would expedite prosecution of the application, the Examiner is urged to contact the undersigned.

Respectfully submitted,
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